GPIB OPERATION

KEYBOARD COMMANDS
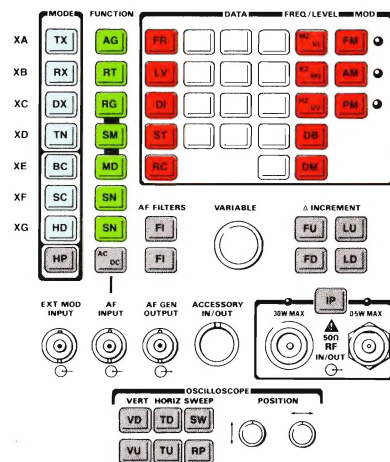
Keyboard equivalent commands

NON-KEYBOARD COMMANDS

PD,EM	Set p.d. or e.m.f. mode
EV,DV	Enable or disable VARIABLE control
SE,SD	Store/poke enable or disable
SQn	SRQ (inhibit, error only, enable : 0,1,2)
UC,LC	Upper case or mixed case terminator strings
WRc,r<CSD>	Write data starting at column c, row r
DS,ES,CS,RS	Disable, enable, clear or restore screen
PG	Purge output buffer
POm,n	Poke data n into location m
DUm,n,n	As PO but only up to terminator or 64 bytes
TF,TE	Record seq. tone freq. or numbers and errors
LF,EX	Select <LF> or <ETX> with <EOI> as terminator
ET,DT	Enable or disable r.f. directional power head
SP	Suppress GPIB annunciators
BX,n,m	Put up soft key boxes of pattern n, length m
BP	Sound beeper
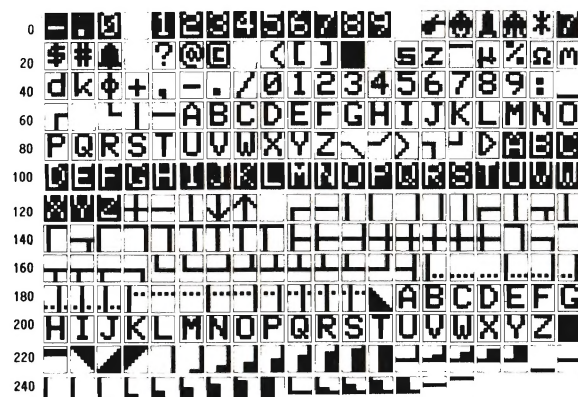
Character set using WR command

DATA TRANSFER
— when addressed to talk —

SV .... Send data string to restore current settings
RDn .... Send reading or setting n, as below:

n	Reading	n	Setting
1	RF counter freq.	26	Seq. tone standard
2	RF power	27	RF gen. freq.
3	Mod. freq.	28	RF gen. level
4	Mod. level	29	AF gen. freq.
5	AF counter freq.	30	AF gen. level
6	AF level	31	Mod. freq.
7	Rx distortion	32	Mod. level
8	Tx distortion	33	RF $\triangle$ freq.
9	Mod. peak, dev. +	34	RF $\triangle$ level
10	Mod. trough, dev. −	35	AF $\triangle$ freq.
11	RF fwd. power	36	AF $\triangle$ level
12	RF refl. power	37	Mod. $\triangle$ freq.
13	VSWR, return loss	38	Mod. $\triangle$ level
14-25	Seq. tone 1-12		
		39	Whole page readings and settings

ER .... Send code for last error detected
VN .... Send software version number
SK .... Send ASCII character for last key pressed
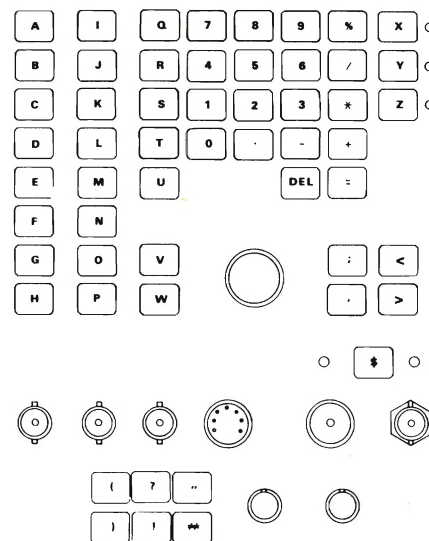
ASCII characters sent following SK command

June 89

Marconi
Instruments

RADIO COMMUNICATIONS TEST SET 2955
0.4 to 1000 MHz

TRANSMITTER TESTING

$\triangle$ = see INCREMENTS

RF POWER METER

Press [Tx] and [SELECT ←→] for required RF IN.

Sustained overload makes display flash and sounds alarm. Read power and frequency on display. Or enter Tx frequency:

e.g. [Tx] [FREQ] [1] [0] [MHz V] and read offset.

MODULATION METER

Press [Tx] and [SELECT ←→] for required RF IN.

Select modulation: [FM] , [AM %] or [ØM RAD]

Select filter: [BAND PASS] (0.3 to 3.4 kHz) or [LOW PASS] (0.3 or 15 kHz).

Use [AF GEN OUTPUT] to modulate Tx if required.
Read a.m. depth or +/− deviation on display.

Monitor demodulated signal on internal loudspeaker or by earphones at ACCESSORY socket. Signal also available at DEMOD OUT socket.

AF GENERATOR

Press [Tx] [AF GEN] and connect UUT to [AF GEN OUTPUT]

Enter frequency followed by units terminator:

e.g. [FREQ] [1] [.] [2] [3] [4] [kHz mV] $\triangle$

Enter level followed by units terminator:

e.g. [LEVEL] [5] [0] [kHz mV] $\triangle$

For 2-tone operation press [TONES] and follow menu.

DISTORTION METER (Tx)

Press [Tx] and [SELECT ←→] for required RF IN.

Connect [AF GEN OUTPUT] to Tx modulating input.

Press [DIST N ON-OFF] until DISTN is displayed.

Select modulation: [FM] , [AM %] or [ØM RAD]

and read % distortion.

RECEIVER TESTING

△ = see INCREMENTS

RF GENERATOR

Press [Rx] , [RF GEN] and [SELECT ←→] for required RF OUT.
(BNC socket has 50 W reverse power protection.)

Enter frequency and level followed by units terminator:

e.g. [FREQ] [1] [2] [3] [.] [5] [MHz V]   △

and [LEVEL] [–] [3] [4] [dBm]   △

Press [SET MOD] and enter modulating frequency:

e.g. [FREQ] [1] [.] [5] [kHz mV]

Enter a.m. depth: e.g. [LEVEL] [6] [0] [AM %]   △

or f.m. deviation: e.g. [LEVEL] [5] [kHz mV]   △

or ø.m. radians: e.g. [LEVEL] [2] [øM RAD]   △

For ext. mod. connect modulating signal to [EXT MOD INPUT]

To swith off int. mod. enter [LEVEL] [0] (kHz, % or RAD).

For 2-tone int. mod. press [TONES] and follow menu.

Press [MOD ON-OFF] to switch int. or ext. mod. on or off.

AF VOLTMETER

Press [Rx] (and [AF GEN] for AUDIO TEST mode
– see AF GENERATOR for settings).

Connect UUT to [AF INPUT] (and [AF GEN OUTPUT] for AUDIO TEST).

Select filter: [BAND PASS] (0.3 to 3.4 kHz) or [LOW PASS] (0.3 or 50 kHz).

To read a.f. volts press [AC DC] to display AC.

To read d.c. + a.f. volts press [AC DC] to display DC

(50 kHz l.p.f. is automatically selected).

Press [DISTN ON-OFF] to read dBV. Then press [dB] to read dBr.

DISTORTION METER (Rx)

Press [Rx] and [SELECT ←→] for required RF OUT.

Set generator frequency – see RF GENERATOR.

Connect Rx input to RF OUT and output to [AF INPUT]

Press [DISTN ON-OFF] to display DISTN (a.c. coupling and 0.3 to 3.4
kHz b.p.f. are automatically selected) and read % distortion.

For noise measurement press [SINAD S/N] to read SINAD or S/N.

DUPLEX TESTING

Press [DUPLEX] and [SELECT ←→] to display ONE or TWO PORT.

Set generator frequency, level and modulation (see RF
GENERATOR) and Rx frequency.

Connect Rx input to RF OUT (N for 1-port or BNC for 2-port
operation).

Select Tx channel.

Connect Tx output to RF IN (N for both 1- and 2-port
operation).

Connect [AF GEN OUTPUT] to Tx modulating input.

Connect Rx output to [AF INPUT] .

Press [DISTN ON-OFF] or [SINAD S/N] and read Rx distortion, SINAD or S/N.

TONES ENCODING/DECODING

(Tone standards : CCIR, ZVEI, DZVEI, EEA/EIA, and User
Defined)

Transmitter test

Press [Tx] and [SELECT ←→] for type N RF IN, and turn on Tx.

Press [TONES] to display TONES STANDARD MENU.

Press MODE key indicated by menu to select required tone
standard, user defined standard or 2-tone operation.

Receiver test

Press [Rx] and [SELECT ←→] for required RF OUT.

Press [TONES] to display TONES STANDARD MENU.

Press MODE key indicated by menu to select required tone
standard, user defined standard or sub-audible tone.

Duplex mode
Follow instructions under DUPLEX TESTING.

Press [TONES] to display TONES STANDARD MENU.

Press MODE key as for 'Receiver test'.

OSCILLOSCOPE DISPLAYS

Press [SCOPE] and set INTENSITY and POSITION .

Press [◀▶] or [▶◀] to change horizontal trace expansion

and [↕] or [✕] to change vertical trace expansion.

Select [REP] for repeated trace on auto-trigger or [SINGLE] for
one sweep in storage mode.

INCREMENTS

Stepped increments or decrements can be selected for:
AF GEN function – frequency and level,
RF GEN function – frequency, level, and modulation units.

Enter step size followed by units terminator:
e.g. for frequency increments:

[FREQ] [△ INCR] [5] [0] [0] [Hz µV]

or for level increments:

[LEVEL] [△ INCR] [.] [2] [dB]

or for modulation increments:

[SET MOD] [LEVEL] [△ INCR] [1] { [AM %]
or
[kHz mV]
or
[øM RAD] }

Then use [FREQ ↑] or [LEVEL ↑] for single steps
[FREQ ↓] [LEVEL ↓]

or VARIABLE for continuous steps of smallest increment
allowed.

STORE AND RECALL

To save settings press [STORE] or [RECALL] followed by identity
digits 01 to 38. [RECALL] 00 restores settings after switch-off.

HELP KEY OPERATION

Press [HELP] to display HELP menu.

Press MODE key indicated by menu for help in TESTING,
CHANGE PARAMETERS or SELF TEST.

ERROR CODES IN SELF TEST

Code	Sig. Gen. frequency	Code	Sig. Gen. power (¼mW)
10	Pass	20	Pass
11,12	20 MHz high, low	21,22	300 MHz low, high
13,14	111 MHz high, low	23,24	849 MHz low, high
15,16	218 MHz high, low	25,26	20 MHz low, high
17,18	340 MHz high, low	27,28	20 MHz (⅛ mW) low, high
19,1A	480 MHz high, low		
1B	Counter failure		

Code	Mod. freq. and level
30	Pass
31,33,34	400 Hz f.m.: freq. fails, level low, high
32,35,36	1 kHz f.m.: freq. fails, level low, high
37,38	1 kHz a.m.: level low, high
39,3A	1 kHz ø.m.: level low, high